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# [1 Lightweight time synchronization for sensor networks](#)

 [Jana van Greunen, Jan Rabaey](#)

**September 2003** [WSNA '03: Proceedings of the 2nd ACM international conference on Wireless se](#)  
[applications](#)

**Publisher: ACM**

Full text available:  [Pdf \(1.38 MB\)](#)


**Additional Information:** [full citation](#), [abstract](#), [reference](#)  
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**Bibliometrics:** Downloads (6 Weeks): 9, Downloads (12 Months): 110, Citation

This paper presents lightweight tree-based synchronization (LTS) methods for sensor networks. First, a tree-based synchronization scheme is analyzed. This scheme requires the exchange of only three message error properties. ...

**Keywords:** lightweight, multi-hop, spanning tree, synchronization

## 2 [The costs and limits of availability for replicated services](#)

 Haifeng Yu, Amin Vahdat

February 2006 ACM Transactions on Computer Systems (TOCS), Volume 24 Issue 1

**Publisher:** ACM


Full text available:  [Pdf](#) (718.65 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)  
[review](#)

**Bibliometrics:** Downloads (6 Weeks): 18, Downloads (12 Months): 185, Citation

As raw system performance continues to improve at exponential rates, the utility of many services is limited by availability rather than performance. A key approach to improving availability involves replicating data on multiple machines. ...

**Keywords:** Availability, continuous consistency, network services, replication, trade-off, upper bound

## 3 [Byzantine disk paxos: optimal resilience with byzantine shared memory](#)

 Ittai Abraham, Gregory V. Chockler, Idit Keidar, Dahlia Malkhi

July 2004 PODC '04: Proceedings of the twenty-third annual ACM symposium on Principles of distributed computing

**Publisher:** ACM

Full text available:  [Pdf](#) (253.82 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)

[terms](#)

**Bibliometrics:** Downloads (6 Weeks): 11, Downloads (12 Months): 24, Citation I

We present Byzantine Disk Paxos, an asynchronous shared-memory consensus protocol that uses a disks,  $t$  of which may fail by becoming non-responsive or arbitrarily corrupted. We give two constru

**Keywords:** Byzantine failures, consensus, shared-memory emulations, termination conditions

#### 4 [Self-stabilizing clock synchronization in the presence of Byzantine faults](#)

◆ Shlomi Dolev, Jennifer L. Welch

◆ **September 2004** Journal of the ACM (JACM), Volume 51 Issue 5

**Publisher:** ACM

Full text available:  [Pdf](#) (151.98 KB) Additional Information: [full citation](#), [abstract](#), [reference](#), [terms](#), [review](#)

**Bibliometrics:** Downloads (6 Weeks): 6, Downloads (12 Months): 92, Citation C

We initiate a study of bounded clock synchronization under a more severe fault model than that pro and Melliar-Smith [1985]. Realistic aspects of the problem of synchronizing clocks in the presence o considered. One aspect ...

**Keywords:** Byzantine failures, clock synchronization, self-stabilization


#### 5 [Practical byzantine fault tolerance and proactive recovery](#)

◆ Miguel Castro, Barbara Liskov

◆ **November 2002** ACM Transactions on Computer Systems (TOCS), Volume 20 Issue 4

**Publisher:** ACM

Full text available: Additional Information: [full citation](#), [abstract](#), [reference](#)

 Pdf (1.63 MB)


[terms](#), [review](#)

**Bibliometrics:** Downloads (6 Weeks): 38, Downloads (12 Months): 339, Citation

Our growing reliance on online services accessible on the Internet demands highly available system service without interruptions. Software bugs, operator mistakes, and malicious attacks are a major interruptions ...

**Keywords:** Byzantine fault tolerance, asynchronous systems, proactive recovery, state machine re transfer

## 6 [ODSBR: An on-demand secure Byzantine resilient routing protocol for wireless ad hoc networks](#)

 Baruch Awerbuch, Reza Curtmola, David Holmer, Cristina Nita-Rotaru, Herbert Rubens  
**January 2008** ACM Transactions on Information and System Security (TISSEC), Volume 10  
**Publisher:** ACM

Full text available:  Pdf (2.02 MB) Additional Information: [full citation](#), [abstract](#), [reference](#)

**Bibliometrics:** Downloads (6 Weeks): 30, Downloads (12 Months): 240, Citation

Ad hoc networks offer increased coverage by using multihop communication. This architecture makes networks vulnerable to internal attacks coming from compromised nodes that behave arbitrarily to disrupt the network. These attacks are referred to as Byzantine ...

**Keywords:** Ad hoc wireless networks, byzantine failures, on-demand routing, security

## 7 [PeerReview: practical accountability for distributed systems](#)

 Andreas Haeberlen, Petr Kouznetsov, Peter Druschel  
**October 2007** SOSP '07: Proceedings of twenty-first ACM SIGOPS symposium on Operating system  
**Publisher:** ACM

Full text available:  Pdf (363.72 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 14, Downloads (12 Months): 239, Citation

We describe PeerReview, a system that provides accountability in distributed systems. PeerReview ( Byzantine faults whose effects are observed by a correct node are eventually detected and irrefutab node. At the same time, ...

Keyw ords: accountability, byzantine faults, distributed systems, fault detection

## 8 [PeerReview: practical accountability for distributed systems](#)

 Andreas Haeberlen, Petr Kouznetsov, Peter Druschel

October 2007 ACM SIGOPS Operating Systems Review, Volume 41 Issue 6

Publisher: ACM

Full text available:  Pdf (363.72 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 14, Downloads (12 Months): 239, Citation

We describe PeerReview, a system that provides accountability in distributed systems. PeerReview ( Byzantine faults whose effects are observed by a correct node are eventually detected and irrefutab node. At the same time, ...

Keyw ords: accountability, byzantine faults, distributed systems, fault detection

## 9 [Bimodal multicast](#)

 Kenneth P. Birman, Mark Hayden, Ozgur Ozkasap, Zhen Xiao, Mihai Budiu, Yaron Minsky

May 1999 ACM Transactions on Computer Systems (TOCS), Volume 17 Issue 2

Publisher: ACM

Additional Information: [full citation](#), [abstract](#), [reference](#)

Full text available:  Pdf (302.06 KB)

[terms](#)

**Bibliometrics:** Downloads (6 Weeks): 8, Downloads (12 Months): 166, Citation I

There are many methods for making a multicast protocol “reliable.” At one end of the spectrum, a r protocol might offer toticity guarantees, such as all-or-nothing delivery, delivery ordering, and per properties ...

## 10 [Contention in shared memory algorithms](#)

 Cynthia Dwork, Maurice Herlihy, Orli Waarts

**November 1997** Journal of the ACM (JACM), Volume 44 Issue 6

**Publisher:** ACM

Full text available:  Pdf (154.50 KB)

**Additional Information:** [full citation](#), [abstract](#), [reference terms](#), [review](#)

**Bibliometrics:** Downloads (6 Weeks): 9, Downloads (12 Months): 88, Citation C

Most complexity measures for concurrent algorithms for asynchronous shared-memory architecture steps and memory consumption. In practice, however, performance of multiprocessor algorithms is contention, ...

**Keywords:** contention, counting networks, mutual exclusion

## 11 [User-level internet path diagnosis](#)

 Ratul Mahajan, Neil Spring, David Wetherall, Thomas Anderson

**December 2003** ACM SIGOPS Operating Systems Review, Volume 37 Issue 5

**Publisher:** ACM

**Additional Information:** [full citation](#), [abstract](#), [reference](#)

Full text available:  Pdf (403.57 KB)


[terms](#)

**Bibliometrics:** Downloads (6 Weeks): 9, Downloads (12 Months): 97, Citation C

Diagnosing faults in the Internet is arduous and time-consuming, in part because the network is cor  
components spread across many administrative domains. We consider an extreme form of this prob  
with no special privileges, ...

Keywords: measurement tools, path diagnosis

## 12 [Transactional file systems can be fast](#)

 Barbara Liskov, Rodrigo Rodrigues

**September 2004** EW 11: Proceedings of the 11th workshop on ACM SIGOPS European workshop

**Publisher:** ACM

Full text available:  Pdf (93.96 KB)

Additional Information: [full citation](#), [abstract](#), [reference](#)

**Bibliometrics:** Downloads (6 Weeks): 2, Downloads (12 Months): 46, Citation C

Transactions ensure simple and correct handling of concurrency and failures but are often considere  
use in file systems. This paper argues that performance is not a barrier to running transactions. It p  
mechanism that ...

## 13 [User-level internet path diagnosis](#)

 Ratul Mahajan, Neil Spring, David Wetherall, Thomas Anderson

**October 2003** SOSP '03: Proceedings of the nineteenth ACM symposium on Operating systems pri

**Publisher:** ACM

Full text available:  Pdf (403.57 KB)


Additional Information: [full citation](#), [abstract](#), [reference](#)  
[terms](#)

**Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 97, Citation C**

Diagnosing faults in the Internet is arduous and time-consuming, in part because the network is composed of components spread across many administrative domains. We consider an extreme form of this problem with no special privileges, ...

**Keywords:** measurement tools, path diagnosis

#### **14** [On fairness in simulatability-based cryptographic systems](#)

 Michael Backes, Dennis Hofheinz, Jörn Müller-Quade, Dominique Unruh

**November 2005** FMSE '05: Proceedings of the 2005 ACM workshop on Formal methods in security

**Publisher:** ACM

Full text available:  [Pdf](#) (276.43 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)

**Bibliometrics: Downloads (6 Weeks): 0, Downloads (12 Months): 18, Citation C**

Simulatability constitutes the cryptographic notion of a secure refinement and has asserted its position as a fundamental concept of modern cryptography. Although simulatability carefully captures that a device does not behave ...

**Keywords:** cryptographic protocols, fairness, scheduling, simulatability

#### **15** [Efficient fork-linearizable access to untrusted shared memory](#)

 Christian Cachin, Abhi Shelat, Alexander Shraer

**August 2007** PODC '07: Proceedings of the twenty-sixth annual ACM symposium on Principles of distributed computing

**Publisher:** ACM

Full text available:  [Pdf](#) (359.46 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)

**Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 81, Citation C**



When data is stored on a faulty server that is accessed concurrently by multiple clients, the server r inconsistent data to different clients. For example, the server might complete a write operation of o with stale data ...

Keywords: arbitrary failures, fork-consistency, storage emulations

## 16 Speculative execution in a distributed file system

◆ Edmund B. Nightingale, Peter M. Chen, Jason Flinn

**November 2006** ACM Transactions on Computer Systems (TOCS), Volume 24 Issue 4

Publisher: ACM

Full text available:  Pdf (1.11 MB) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 16, Downloads (12 Months): 210, Citator

Speculator provides Linux kernel support for speculative execution. It allows multiple processes to s state by tracking causal dependencies propagated through interprocess communication. It guarante by preventing speculative ...

Keywords: Distributed file systems, causality, speculative execution

## 17 A survey of rollback-recovery protocols in message-passing systems

◆ E. N. (Mootaz) Elnozahy, Lorenzo Alvisi, Yi-Min Wang, David B. Johnson

**September 2002** ACM Computing Surveys (CSUR), Volume 34 Issue 3

Publisher: ACM

Full text available:  Pdf (549.68 KB) Additional Information: [full citation](#), [abstract](#), [reference](#)  
[terms](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 49, Downloads (12 Months): 597, Citator

This survey covers rollback-recovery techniques that do not require special language constructs. In survey we classify rollback-recovery protocols into *checkpoint-based* and *log-based*. *Checkpoint-ba*

Keywords: message logging, rollback-recovery

## 18 Coyote: a system for constructing fine-grain configurable communication services

◆ Nina T. Bhatti, Matti A. Hiltunen, Richard D. Schlichting, Wanda Chiu

◆ November 1998 ACM Transactions on Computer Systems (TOCS), Volume 16 Issue 4

Publisher: ACM

Full text available:  Pdf (290.21 KB) Additional Information: [full citation](#), [abstract](#), [reference terms](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 54, Citation C

Communication-oriented abstractions such as atomic multicast, group RPC, and protocols for locatic mobile computing can simplify the development of complex applications built on distributed systems; describes Coyote, a system ...

Keywords: x-kernal, configurable sevicees, customization, event handlers, event-driven execution, microprotocols, mobile computing, modularity, multicast, protocols, remote procedure call

## 19 Total order broadcast and multicast algorithms: Taxonomy and survey

◆ Xavier Défago, André Schiper, Péter Urbán

◆ December 2004 ACM Computing Surveys (CSUR), Volume 36 Issue 4

Publisher: ACM

Full text available:  Pdf (544.45 KB) Additional Information: [full citation](#), [abstract](#), [reference terms](#)

**Bibliometrics: Downloads (6 Weeks): 38, Downloads (12 Months): 485, Citation**

Total order broadcast and multicast (also called atomic broadcast/multicast) present an important p systems, especially with respect to fault-tolerance. In short, the primitive ensures that messages se processes are, ...

**Keywords:** Distributed systems, agreement problems, atomic broadcast, atomic multicast, classific algorithms, fault-tolerance, global ordering, group communication, message passing, survey, taxon

## 20 DieHard: probabilistic memory safety for unsafe languages

◆ Emery D. Berger, Benjamin G. Zorn

**June 2006** PLDI '06: Proceedings of the 2006 ACM SIGPLAN conference on Programming language implementation

**Publisher: ACM**

Full text available:  [Pdf \(183.05 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference terms](#)

**Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 92, Citation C**

Applications written in unsafe languages like C and C++ are vulnerable to memory errors such as b dangling pointers, and reads of uninitialized data. Such errors can lead to program crashes, security unpredictable ...





**Keywords:** DieHard, dynamic memory allocation, probabilistic memory safety, randomization, repli

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